REMARKS

Favorable reconsideration of this application is requested in view of the following remarks.

Claims 1, 3, and 5 have been amended to clarify that the encoder correction ROM has a function to store a previously measured swing scanning angle and output the previously measured and stored swing scanning angle as supported by the specification at page 4, line 18 – page 5, line 4, page 11, line 28 – page 12, line 4, and page 14, line 9-11. Also, claims 3 and 5 have been amended editorially to use the word "element" instead of "means".

Claims 1-6 have been objected to because of informalities. Claims 1, 3, and 5 have been amended to remove the word "outside" and use a "previously measured" swing scanning angle instead of "an actual swing scanning angle". Thus, it is clear that the encoder correction ROM of claims 1, 3, and 5 stores the previously measured swing scanning angle and outputs the stored swing scanning angle, and that the swing directional angles of claims 2, 4, and 6 are a particular type of the swing directional angles, which are different between the forward and return paths of the swing scanning. Accordingly, claims 1-6 are clear.

In addition, claims 1, 3, and 5 have been amended to clarify that the claims are not means plus function claims by using the word "element" instead of "means.

Accordingly, this objection should be withdrawn.

Claims 1-6 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Yamamoto et al. (U.K. Patent Application Publication No. GB 2,216,660) in view of Pini (U.S. Patent No. 5,159,931). Applicants respectfully traverse this rejection.

Yamamoto discloses a method of correcting an ultrasonic picture signal by eliminating a positional shift of an ultrasonic picture image caused by backlash and correcting an ultrasonic picture signal by adding a correcting signal corresponding to the positional shift to an output signal from an encoder (see page 2, lines 1-12 under Summary of the Invention). Yamamoto discloses that the positional shift of the image, i.e., the shifts between a' and b' of Fig. 2(b), is eliminated by adding the correction signal, which is

determined by observing the monitor and changing the value of the correcting signal to coincide the two images with each other (see Figs. 2(b) and 2(b), page 6, para. 1, lines 4-14, page 7, second para., and page 8, second para., lines 3-15). In Yamamoto, however, two images in the forward and reverse movement of the encoder are obtained, and then the signal is corrected by using these two obtained images (see page 7, last para. line 1 to page 8, line 5). Accordingly, Yamamoto fails to disclose an encoder correction ROM that outputs the previously measured and stored swing scanning angle corresponding to each count value obtained by counting pulses from the rotary encoder as claims 1, 3, and 5 require. By using the encoder correction ROM that can store different correction data for a forward path and for a return path, the ultrasonic probe can solve a problem of forming different three-dimensional images and distortions of the three dimensional images for the forward and return paths (see page 13, line 19 – page 14, line 3 of the specification). In addition, by using the stored swing scanning angle corresponding to each count value, the ultrasonic probe can form an image while correcting each encoder count value and can provide a more precise three-dimensional image of a tissue in a living body (see page 15, lines 14-19 of the specification). Accordingly, claims 1, 3, and 5 are distinguished from Yamamoto.

Pini discloses an ultrasonic probe that determines "their angular location with reference to a predetermined zero position derived from the probe itself" (see coln. 8, lines 5-10) and a microprocessor that controls a counter for the sectorial scanning and a counter for rotation control (see coln. 8, lines 50-55). Outputs from the counters for the sectorial scanning and the rotation control are combined for controlling a stepper motor driver (*id.*). However, Pini fails to disclose a probe having the encoder correction ROM that stores a previously measured swing scanning angle of the ultrasonic transducer with respect to each count value obtained by counting pulses from the rotary encoder and outputs the previously measured and stored swing scanning angle of the ultrasonic transducer as claims 1, 3, and 5 require. By having the encoder correction ROM, the probe can correct the deviation of the swing scanning angle caused by a backlash of the motor or a non-linear functional relationship between the count value of the encoder and the swing scanning angle of the ultrasonic transducer for each count value (see, for example, page 15, lines 2-19 and page 18, lines 12-20 of the specification). Further, by having the encoder correction ROM, the correction is made based on the stored data of each ultrasonic probe, which differ from a

probe to a probe, and the ultrasonic probe of these claims can provide an excellent image even if different probes are used (see page 18, lines 5-11 of the specification). Thus, Pini does not remedy the deficiencies of Yamamoto, and claims 1, 3, and 5 are distinguished from Yamamoto in view of Pini. Accordingly, this rejection should be withdrawn.

In view of the above, Applicants request reconsideration of the application in the form of a Notice of Allowance.

Respectfully submitted,

HAMRE, SCHUMANN, MUELLER & LARSON, P.C.
P.O. Box 2902
Minneapolis, MN 55402-0902
(612) 455-3800

Dated: February 12, 2009

By: _____
Douglas P. Mueller
Reg. No. 30,300

DPM/my/ad